

IN THE MATTER OF

NATIONAL ELECTRICAL ) APPEAL OF DEPARTMENT DECISION  
MANUFACTURERS ASSOCIATION ) DENYING REQUEST FOR EXEMPTION  
 ) FROM THE PROHIBITION ON SALE OF  
FINDINGS OF FACT AND ORDER ) MERCURY THERMOSTATS

Pursuant to Title 38, sections 341-D, subsection 4, and 1661-C, subsection 5 of the Maine Revised Statutes Annotated, the Board of Environmental Protection (herein "Board") has considered the appeal of the National Electrical Manufacturers Association (herein "NEMA"), its supportive data and other related materials on file and FINDS THE FOLLOWING FACTS:

1. PROCEDURAL HISTORY

By letter dated December 16, 2002, NEMA<sup>1</sup> applied to the Department of Environmental Protection (Department) for exemption from 38 MRSA § 1661-C, sub-§ 5. This law provides:

"After January 1, 2006, a person may not sell or offer to sell or distribute for promotional purposes a mercury-added thermostat except for a thermostat used by a blind or visually impaired person. A manufacturer of mercury-added thermostats may apply to the commissioner prior to January 1, 2003 for an exemption from the provisions of this subsection for one or more specific uses of a mercury-added thermostat. The Commissioner of Environmental Protection may grant an exemption with or without conditions upon finding that:

- A. The manufacturer has demonstrated that a system exists for the proper collection, transportation and processing of the mercury-added thermostat at the end of its life; and
- B. The specific use or uses of the mercury-added thermostat provide a net benefit to the environment, public health or public safety when compared to available nonmercury alternatives."

On December 18, 2002, public notice inviting comment on the application was published in the *Kennebec Journal*. On December 20, 2002, the Department mailed notice of the application to 31 potentially interested persons. Written comments were received from seven persons.

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<sup>1</sup> NEMA is a national trade association representing manufacturers of thermostats, batteries, lamps and other electrical products. The association filed its exemption application on behalf of thermostat manufacturers General Electric, Honeywell and White Rodgers.

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By letters dated February 5 and February 28, 2003, NEMA supplemented its application in response to Department requests for additional information.

By contract dated March 17, 2003, the Department hired the Lowell Center for Sustainable Production (LCSP) at the University of Massachusetts Lowell to evaluate information on thermostat energy efficiency submitted by NEMA in support of its exemption request and to conduct research on thermostat energy efficiency. LCSP's findings are compiled in a May 12, 2003 report titled *A Review of Thermostat Energy Efficiency and Pricing*.

By memorandum dated May 23, 2003, the Department mailed its draft decision on the exemption application, together with the LCSP report, to 40 potentially interested persons including NEMA and the ten thermostat manufacturers mentioned in the LCSP report. Written comments of the draft decision were received from NEMA on June 26, 2003 and from the Natural Resources Council of Maine on June 27, 2003.

In a written decision dated August 8, 2003, the Department denied NEMA's exemption request. A copy of the decision was delivered by certified mail to NEMA's headquarters in Rosslyn, Virginia on August 18, 2003.

By letter dated September 11, 2003, NEMA appealed the Department decision to the board and submitted supplemental information. In a letter dated March 10, 2004, the board chair admitted the supplemental information into the record.

## 2. STANDING

The Board finds that NEMA, as applicant for the exemption denied by the Department, is an aggrieved person as defined under chapter 2, section 1(B), of Department rules and therefore may bring this appeal. The three companies on behalf of which NEMA brings the appeal manufacture mercury-added thermostats sold in Maine, and may be adversely affected by the Department's decision to deny an exemption allowing them to continue to sell these products after January 1, 2006.

## 3. FINDINGS AND CONCLUSIONS OBJECTED TO

In denying NEMA's exemption request; the Department concluded:

- The use of mercury-added thermostats does not provide a net benefit to the environment, public health or public safety when compared to available nonmercury alternatives; and
- NEMA has failed to demonstrate that a system exists for the proper collection, transportation and processing of mercury-added thermostats at end of life.

NEMA objects to both conclusions and contests a number of the specific findings made by the Department. NEMA further contends that it was denied due process.

#### 4. BASIS FOR APPEAL

NEMA challenges the Department decision on both procedural and factual grounds, and contends that mistakes in process led to errors in fact. The alleged procedural shortcomings are discussed in paragraph 5 below. The findings of fact contested by NEMA are discussed in paragraphs 6 and 7. Paragraph 6 addresses the alleged factual errors made by the Department in finding that mercury thermostats do not provide a net energy efficiency benefit. Paragraph 7 addresses the alleged factual errors made by the Department regarding the collection of mercury thermostats.

#### 5. RESPONSE TO APPELLANT'S DUE PROCESS CONCERNS

NEMA asserts that the Department refused to acknowledge NEMA's desire to meet with the commissioner and ignored NEMA's recommendations to meet with thermostat experts to discuss the technical issues surrounding its request for exemption. As a result, NEMA says the Department decision "misstates NEMA's position in many cases and states as fact a number of propositions that would not be taken seriously by people actually working in the industry."

NEMA observes that, because the ban in question does not take effect until January 1, 2006, there was no reason for the Department to make a decision when it did. NEMA further observes that David Lennett, a former Director of the Bureau of Remediation and Waste Management, signed the decision a few days before he left the Department. NEMA believes this demonstrates a rush to judgment and lack of due process on behalf of the Department.

Discussion. Mr. Lennett signed the Department decision on August 8, 2003, a full seven months after NEMA filed its exemption request. The fact that he left state employment shortly thereafter does not, by itself, demonstrate a rush to judgment.

The record demonstrates that NEMA was given ample opportunity to make its case for exemption. The first opportunity was in the supporting materials that NEMA chose to file with its exemption request in December 2002. NEMA then was given the opportunity to supplement this initial filing in response to specific and detailed information requests from the Department in January 2003 and again in February. Finally, in May 2003, NEMA was invited to comment on the Department's draft decision denying the exemption request.

NEMA availed itself of each of these opportunities to supplement the written record, and submitted additional supplemental information in support of this appeal.<sup>2</sup> Indeed, NEMA

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<sup>2</sup> In a letter dated March 11, 2004, to Ric Erdheim of NEMA, Rich E. Wardwell, Chair of the Board of Environmental Protection, admitted into the record all supplement evidence offered by NEMA in its appeal petition.

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does not contest the adequacy of the written record. Rather, NEMA contends it was denied due process by the "refusal" of the Department to meet with NEMA representatives.

NEMA offers two excerpts from the written record in support of the proposition that the Department refused to meet. First, in its February 5, 2003 response to the Department's request for additional information, NEMA wrote:

"We realize that the following discussion and supporting information is very technical and may be difficult to understand. We have attempted below to put the information into understandable terms but realize that this still may be too technical for non-engineers. We would be happy to discuss this information directly with you if you feel that would be helpful."

The Department did not take NEMA up on this offer. Instead, the Department hired the LCSP (see page 2) to conduct an independent evaluation of the relative efficiency of mercury and nonmercury thermostats. This was a sensible step in our estimation and is not, as NEMA implies, tantamount to a refusal to meet.

As an aside, NEMA asserts that the Department did not give thermostat manufacturers the opportunity to comment on LCSP's final report of May 12, 2003. The record contradicts NEMA's assertion. On May 23, 2003, the Department mailed the report and its draft decision on the exemption request to NEMA and to ten thermostat manufacturers. The cover memorandum to the mailing invites the recipients to comment on both the draft decision and the LCSP report.

The second excerpt offered by NEMA to show that the Department refused to meet is from NEMA's comments on the draft decision. NEMA's June 26, 2003 cover letter to its comments concludes with the following:

"NEMA will be requesting a meeting with the Commissioner prior to her taking any action on the exemption request."

Mr. Lennett then signed the Department decision six weeks later on August 8, 2004, without notifying NEMA that a decision was imminent and, NEMA contends, thereby depriving NEMA of the opportunity to arrange a meeting with the commissioner. To remedy the situation, NEMA asks us to remand the decision to the commissioner and require the commissioner to meet with the appellants.

It is unnecessary for us to rule on this request because Commissioner Gallagher decided on her own to meet with the appellants. Our consideration of this appeal was delayed to allow the meeting to occur. The meeting was held on January 9, 2004 and afforded NEMA the additional opportunity to explain the technical and complex information that NEMA alleges

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may have been misunderstood by Department staff. The Department continues to believe the original decision denying NEMA's exemption request is legally and factually correct, and now asks the Board to affirm that decision.

6. RESPONSE TO APPELLANT'S ARGUMENTS ON THERMOSTAT ENERGY EFFICIENCY

NEMA alleges that the Department made a number of errors in concluding that mercury thermostats do not provide a net benefit to the environment, public health or public safety when compared to available nonmercury alternatives. Each alleged error is discussed separately below.

- A. Alleged error: The Department misstated NEMA's position regarding the efficiency of various types of thermostats.

Discussion: In its findings on thermostat energy efficiency, the Department states NEMA's position as follows:

"NEMA claims that mercury thermostats provide a net environmental benefit in the form of reduced pollution from power generation because mercury thermostats are one of the most energy efficient thermostats available. According to NEMA, mercury thermostats and Energy Star electronic programmable thermostats have a temperature drift of plus or minus ( $\pm$ ) 2 degrees Fahrenheit from the set point, while other thermostats have a drift ranging from  $\pm$  4 to  $\pm$  6 degrees.<sup>3</sup> Thermostats that have a narrow drift save energy according to NEMA because, based on information from the U.S. Department of Energy, there is a three percent energy efficiency loss for every additional degree of drift. Because the burning of fossil fuels for space heating and power generation is a significant source of mercury and other air pollutants, NEMA argues that the reduced energy consumption associated with use of mercury thermostats provides a net benefit to the environment and public health."

NEMA does not say where the Department erred in these findings, nor is the nature of the alleged misstatement clear from a review of NEMA's exemption application and supporting information. In its appeal petition, however, NEMA restates its position on thermostat energy efficiency as follows:

"Only the very best electronic thermostats hold temperature as effectively as mercury switch thermostats. Test data clearly shows that many models of electronic thermostats and nonmercury switch mechanical thermostats do not hold temperature around the desired set point as well as mercury switch thermostats. With greater

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<sup>3</sup> The term "drift" as used here is explained in footnote 1 of the department August 2003 decision denying NEMA's exemption request.

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temperature swings you have less efficient use of heating and cooling equipment and less temperature comfort. The Department of Energy says there is a 3% efficiency loss for every greater degree of heating or cooling that is used. Increased energy use results in higher costs for consumers and increased power from plants needed to generate more energy. A programmable thermostat has the potential to achieve greater energy efficiency if the programming function is properly used. Independent studies show a large majority of homeowners do not properly use programmable thermostats."

In comparing this restatement with the Department findings, it appears that the Department interpreted NEMA's submission to make a stronger claim on behalf of the energy efficiency benefits of mercury thermostats than NEMA may have intended. NEMA claims only that many mercury thermostats are more energy efficient than many nonmercury thermostats. It does not claim that mercury thermostats are more efficient in every instance. Nor, contrary to the Department's representation, does NEMA explicitly claim that the use of mercury thermostats will provide a net environmental benefit to the citizens of Maine in the form of reduced pollution from power generation.

All that NEMA attempts to show, and we believe has shown, is that there are nonmercury thermostats that are inherently inferior in their ability to hold temperature around the set point. NEMA does not assert that Maine will realize an overall decrease in energy use by allowing mercury thermostats to remain in commerce. Nor does NEMA base its case for exemption solely on the purported energy efficiency benefits of mercury thermostats.

In fact, nowhere in its exemption application or supporting materials does NEMA articulate, either qualitatively or quantitatively, the exact nature of the net benefit that it asserts Maine citizens will enjoy from the continued availability of mercury thermostats. NEMA simply makes the conclusory assertion that mercury thermostats "provide a net benefit to the environment, public health or public safety when compared to available nonmercury alternatives." It then follows this assertion with a potpourri of observations about thermostats without any explanation as to how these observations, individually or in combination, support the conclusion that mercury thermostats are more beneficial than the nonmercury alternatives.

It appears that, while the Department may have overstated NEMA's position on the energy efficiency benefits of mercury thermostats, NEMA itself has failed to articulate a position on which the requested exemption can be granted. Instead, NEMA offers a scattershot approach that invites the Board to discern a net benefit from among a litany of observations about thermostats. Most of these observations offer no readily apparent benefit to the environment, public health or public safety and we decline the implied invitation to intuit a benefit.

- B. Alleged error. The Department ignored test data clearly showing that mercury thermostats are more energy efficient than a large number of available nonmercury alternatives.

Discussion. There is no indication in the record that the Department ignored any of the data submitted by NEMA. To the contrary, the Department appears to have cast a wider net and considered thermostat energy efficiency data from other sources rather than relying solely on the NEMA data. The record on the whole shows that numerous nonmercury thermostat models are available with energy efficiency ratings equal or superior to that asserted by NEMA for mercury-switch thermostats. The nonmercury thermostat choices include programmable and non-programmable electronic models and nonmercury electromechanical models.

The thermostat efficiency data considered and relied on by the department, including the data submitted by NEMA, is derived from testing conducted by thermostat manufacturers. The Department did not independently test the thermostats and did not require independent testing. We do not find any evidence for NEMA's allegation that the Department found NEMA's data to be inadequate because it was produced by Honeywell and not by an independent laboratory. Rather, the Department found NEMA's data insufficient to grant the requested exemption in light of countervailing data from other manufacturers.

We do not think it was unreasonable for the Department to seek out data from other manufacturers given that the NEMA data covered a limited universe of thermostat models. NEMA suggests, however, that the proper course would have been for the Department to come back to NEMA and agree on a testing protocol that would satisfy the Department's concerns about the sufficiency of the NEMA data. As it was, NEMA says it was never told that its energy efficient data was insufficient to support its exemption request.

The record suggests that NEMA did have advance notice of the Department's intended direction. On May 23, 2003, over ten weeks before the final decision denying the exemption request, the Department mailed a copy of its draft decision to NEMA for comment. This draft order leaves no doubt that the Department found the limited thermostat efficiency data submitted by NEMA to be insufficient to support its exemption request.

NEMA's June 26, 2003 response to the draft decision offered no additional data on thermostat energy efficiency, nor did NEMA ask for the final decision to be delayed so that it could conduct additional testing. NEMA instead chose to criticize the Department and its consultant LCSP for relying on data from other thermostat manufacturers without

independently testing the thermostats. The Department responded to this concern in its final decision as follows:

"[To] the extent independent testing is needed or would be beneficial to validate manufacturer claims regarding thermostat performance, NEMA is the appropriate party to provide such test data. Through its petition, NEMA seeks a blanket exemption for each and every mercury thermostat covered by the sales restriction enacted by the Legislature. As the petitioner seeking an exemption from an otherwise applicable statutory provision, NEMA bears the factual burden for demonstrating a clear net benefit to human health or the environment in this instance. Given the scope of the exemption sought in this case, it is particularly appropriate that NEMA bear this burden."

Additional test data on thermostat energy efficiency may or may not have bolstered NEMA's case for exemption. However, there is no indication in the record that the Department's process deprived NEMA of the opportunity to submit such data, either by refusing to meet to discuss a protocol for additional testing or by refusing to give NEMA more time to conduct testing. To the contrary, as NEMA acknowledges in its appeal petition, the Department granted NEMA's request for a one-week extension of the comment deadline on the Department's draft decision. NEMA did not ask the Department for more time to conduct independent testing nor did it ask to meet with the Department to discuss this possibility.

C. Alleged error. The Department relied on a flawed analysis of thermostat energy efficiency by the Lowell Center for Sustainable Production (LCSP). Specifically, NEMA alleges the following:

- LCSP failed to demonstrate expertise or experience in the heating, ventilation and air conditioning industry.

Discussion. The LCSP is well qualified to conduct research on thermostat energy efficiency. The LCSP, which is based at the University of Massachusetts Lowell, is a repository of expertise on systems of production that are safe, healthy, environmentally sound, economically viable and socially accountable. LCSP hosts the Product Stewardship Institute, which has specific expertise in reducing the environmental impacts of products through manufacturer responsibility. The LCSP has a staff of 15 professionals with expertise and experience in process engineering, mechanical engineering, industrial hygiene, environmental science and clean production policy. The LCSP has conducted toxic use reduction research resulting in over 60 technical reports. One of these reports, *An Investigation of Alternatives to Mercury-Containing Products*, was commissioned by the Department and published in January 2003. This report was the basis for legislation banning the sale of mercury

switches, relays and measuring devices in Maine beginning July 1, 2006. LCSP's subsequent *Review of Thermostat Energy Efficiency and Pricing*, published May 12, 2003, followed up its earlier work on mercury measuring devices.

- LCSP used an inappropriate standard in evaluating the efficiency of different types of thermostats.

Discussion. NEMA made this same argument in its June 26, 2003 comments on the LCSP report. The Department thoroughly responded to the argument in its final decision on NEMA's exemption request. NEMA now reiterates the argument for the purpose of this appeal and we reiterate the Department response. The Board finds the that response to be cogent and uncontroverted, and we adopt it here:

"For the purpose of its review, LCSP considered a thermostat to be energy efficient if it has a temperature *differential*<sup>4</sup> of  $\pm 2$  degrees F or less and has other functions to control drift such as anticipator control and cycle rate control. NEMA argues this is a new test for energy efficiency, one that 'has never been considered that we are aware of let alone approved by any organization that establishes standards and testing requirements for energy efficiency of thermostats.' NEMA suggests that the appropriate test is whether the thermostat has a temperature *drift* (also called swing) of  $\pm 2$  degrees or less, the standard used by the U.S. Environmental Protection Agency (EPA) under its Energy Star program. To qualify for the Energy Star label, a thermostat must be programmable and must be capable of maintaining room temperature swings within  $\pm 2$  degrees of the setpoint temperature.

LCSP agrees that the Energy Star temperature swing standard is an appropriate basis for determining if a thermostat is energy efficient. During its review, however, LCSP found that temperature swing data was largely unavailable from thermostat manufacturers. Manufacturers often publish temperature differential values, but they generally do not make available the system lag, system overshoot and resultant temperature swing. LCSP therefore used temperature differential and the presence or absence of additional control functions as a surrogate to assess thermostat energy efficiency.

In support of the efficacy of its approach, LCSP observes that NEMA's own exemption application states that 'the two key components of efficiency are the switch differential and the anticipation setting.' These two factors are key according to NEMA because they affect the cycle rate, the rate at which the thermostat turns equipment on or off. Thermostat efficiency, says NEMA, depends on how well the thermostat cycles heating or cooling equipment. LCSP

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<sup>4</sup> The term "differential" is defined and explained in footnote 1 of the Department decision.

agrees with the importance of the efficiency factors identified by NEMA, and it is precisely these thermostat features--the ability of the user to control differential, anticipation setting and cycle rate--that LCSP looked at. The presence of these features enables the user to directly control temperature swing. A thermostat that has these features and a reported differential of  $\pm 2$  degrees F or less has a reasonable likelihood of meeting the Energy Star temperature swing standard of  $\pm 2$  degrees if properly installed and calibrated.

In preparing its report, LCSP relied on energy efficiency data supplied by thermostat manufacturers because standardized, independent testing data were not available. Reliance on energy efficiency data from manufacturers is consistent with EPA's approach under its Energy Star program. The EPA requires manufacturers to perform energy efficiency tests and self-certify the thermostats as meeting the Energy Star guidelines, but does not prescribe a specific test protocol or require manufacturers to submit test results. Moreover, NEMA itself relies on thermostat specifications derived from manufacturer testing in support of its exemption petition."

These findings belie the contention that the LCSP, in evaluating thermostat energy efficiency, used "a new test that has never been considered ... let alone approved by any organization that establishes standards and testing requirements for energy efficiency of thermostats." To the contrary, the LCSP used data placed in the public domain by thermostat manufacturers, and the data it used is the same type of data that NEMA relies on to support its position on the efficiency of mercury thermostats.

- LCSP erroneously concludes that a thermostat with a 4-degree differential is as efficient as a thermostat with a 1-degree differential.

Discussion. For the purpose of its review, LCSP considered a thermostat to be energy efficient if it has a differential of 4° F or less and additional control functions. Nowhere in its report does LCSP say or suggest that all thermostats with a 4-degree or less differential are equally efficient. Nor is there any indication that such an assumption underlies the Department decision to deny NEMA's exemption request. To the contrary, it is clear from our review of record that the Department understands the relationship between thermostat differential and energy efficiency. Indeed, the Department does not dispute NEMA's statement that "a thermostat with a lesser temperature differential will provide better temperature control and resulting comfort and result in less energy use." If there is a dispute, it is over the extent to which the record supports the conclusion that mercury switch thermostats on the whole have a lesser differential than available nonmercury thermostat models.

- D. Alleged error. The Department incorrectly concludes that all thermostats in the Energy Star program are equally efficient.

Discussion. The Department did not premise its denial of NEMA's exemption decision on the conclusion that all Energy Star thermostats are equally efficient. Nor can we find any basis in the record for concluding that the Department found that all Energy Star thermostats are equally efficient.

Energy Star is a program run by the U.S. Environmental Protection Agency (EPA) and Department of Energy (DOE) to help businesses and individuals protect the environment through superior energy efficiency. The program accomplishes this goal by identifying and promoting energy efficient products including thermostats. The Energy-Star website lists over 125 thermostat models that qualify for the Energy Star label. None of these are mercury switch thermostats because, to be eligible to use the Energy Star label, a thermostat must be programmable and must be capable of maintaining room temperature swings within  $\pm 2^\circ$  F of the setpoint temperature.

In its application for exemption, NEMA says "Energy Star programmable thermostats that are used properly are the most energy efficient thermostat in almost all cases, and their use should be encouraged." NEMA nevertheless cautions against relying on the Energy Star label without reservation. First, there are significant differences in energy efficiency characteristics among thermostats with the Energy Star label. Just because a thermostat has an Energy Star label does not mean it is the most energy efficiency thermostat available. Second, participation in the Energy Star program is voluntary and manufacturers self-certify their products. Neither the EPA nor DOE independently evaluate thermostats to determine whether they met the eligibility criteria.

There is nothing in the record or the Department decision to suggest that the Department was unmindful of these limitations or that it gave undue weight to the Energy Star label in reviewing data on thermostat energy efficiency. Further, the issue of manufacturer self-certification is not unique to the Energy Star program. All of the thermostat efficiency data considered by the Department, including the data submitted by NEMA, was from testing performed by manufacturers. According to the LCSP report, standardized independent testing data are not available.

- E. Alleged error. The Department misstates an excerpt from the Oregon Energy Code showing that programmable thermostats are not always the most efficient.

Discussion. NEMA submitted an excerpt from the Oregon Administrative Rules in support of the proposition that programmable thermostats are not always the most energy efficient. The excerpt is from a rule titled "Energy Conservation Standard for Existing

Dwellings." One section of this rule sets forth a number of Advisory Energy Conservation Standards, including the following recommendation:

"For space heating and cooling system controls to reduce heat loss due to unnecessary operation of heating equipment during sleeping hours or periods when the house is unoccupied: A timed setback space heating and cooling control thermostat should be added."

A footnote to this section contains the following exception:

"Timed setback thermostats are not recommended for households that conscientiously practice manual thermostat setback. In such cases, thermostats may not pay for themselves and in fact may be less effective in saving energy."<sup>5</sup>

NEMA reads this footnote to clearly demonstrate the importance of programming for achieving energy efficiency improvements and to suggest that a homeowner who practices manual thermostat setback may lose energy efficiency by switching to a programmable thermostat.

The Department, in its final decision, did not take a position on the footnote, citing only the body of the rule for the proposition that "programmable thermostats that allow timed setback are the best choice for energy conservation reasons."

We find that NEMA is reading more into the footnote than is warranted from the context or supported by evidence in the record. We read the footnote as a cautionary note, designed to warn homeowners who are making energy efficiency improvements to an existing dwelling that they may not realize a financial payback by switching to a programmable thermostat if they already conscientiously practice manual setback.

Even accepting NEMA's broader interpretation, it is not clear to us how exactly this snippet from the Oregon Administrative Rules supports the conclusion that Maine citizens on the whole will use less energy as a result of the continued marketing of mercury thermostats. Certainly, it is not clear that the Oregon Office of Energy, by this footnote, meant to opine that mercury thermostats generally are more energy efficient than programmable thermostats. To the contrary, the office clearly recommends that homeowners consider installing programmable thermostats for energy efficiency reasons. Oregon, like Maine, has banned the sale of mercury thermostats effective January 1, 2004.<sup>6</sup>

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<sup>5</sup> Oregon Administrative Rule 330-062-0025-2-a.

<sup>6</sup> Oregon Revised Statutes 455.355

- F. Alleged error. The Department ignored all data showing that homeowners have difficulty using programmable thermostats.

Discussion. There is no indication in the record that the Department ignored this information or disagrees that many homeowners who buy programmable thermostats do not take advantage of the programming feature. Much of the information submitted by NEMA on this point is cited in the Department decision, albeit together with information from others suggesting that the alleged programming dysfunction of the general populace may not be as pervasive as NEMA suggests.

To the extent that the Department and NEMA disagree, it is on the import of failure to use the programming feature. In its decision, the Department makes the following finding:

"Failure to properly program the thermostat would appear to simply deprive the user of the additional energy savings that the programming features are designed to provide. Assuming arguendo some households incur a small energy penalty where programming functions are used improperly, NEMA provides no evidence showing the penalty would outweigh the energy savings achieved by households that, as a consequence of the ban on mercury thermostat sales, purchase and properly use programmable thermostats."

In its appeal petition, NEMA responds that this finding "ignores all of the test data provided showing that only the best programmable thermostats have the same characteristics as mercury-added thermostats and that allow for energy efficiency."

We find NEMA's response puzzling in that the programming capability of a thermostat is unrelated to its inherent ability to hold temperature around the set point. All the programming feature does is allow the user to program the thermostat so that the setpoint temperature is automatically lowered during sleeping hours and periods when the home is not in use. In a worst-case scenario, someone who conscientiously practices manual setback on a mercury thermostat may realize no net energy savings by switching to a programmable thermostat.

Homeowners who select energy efficient programmable thermostats do not need to program them to enjoy the energy efficiency benefits. Programmable thermostats come with default settings that allow them to be operated without special programming. By allowing timed setback, the programming feature can provide additional energy benefits over and above a comparably rated mercury thermostat. However, the homeowner does not have to program the thermostat to practice setback. Manual setback can be practiced with an electronic thermostat as easily as with a mercury model. Moreover, failure to use

the programming feature has no effect on how well the thermostat holds temperature around the desired set point.

Consumers often are advised that installing a programmable thermostat can save them from 15 to 30% on their energy bills. While such savings may be possible in theory, NEMA has submitted information showing that programmable thermostats may be achieving considerably lower saving than their estimated potential, either because homeowners fail to make use of the programming function to practice setback or because they already were practicing setback manually. If a homeowner already practices setback, there are fewer savings to be garnered by installing a programmable thermostat and automated setback may not be any more conservative in energy use than setback by hand.<sup>7</sup>

The Energy Center of Wisconsin, in a study submitted by NEMA and referenced in the Department decision, suggests that the overall energy savings from programmable thermostats could be negligible. Jonathan Kleinman of Efficiency Vermont, in comments on NEMA's exemption application, believes savings of 2 to 3% are more realistic. However, having shown that the actual energy savings from conversion to programmable thermostats likely are modest, NEMA then does not convincingly explain how these lowered energy conservation expectations for programmable thermostats support the assertion that mercury thermostats provide a net benefit to the environment.

- G. Alleged error. The Department ignored evidence that there are retrofit problems with electronic thermostats.

Discussion. NEMA points out that replacing a mercury thermostat with an electronic thermostat could pose an electrical wiring issue. This is because a mercury thermostat needs only four wires. Electronic thermostats usually require five wires.

There are four solutions to this replacement issue. The best solution according to NEMA is to install a fifth wire, which can be difficult and costly and perhaps impossible in some situations.

A second solution is to stay with four wires and use a battery powered electronic thermostat. NEMA says this solution is problematic because the homeowner, if not alerted, must remember to change the batteries regularly. If the battery dies, the heating and cooling equipment may not function, which could be catastrophic. Thermostat manufacturer Invensys, in written comments on NEMA's exemption application, says

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<sup>7</sup> U.S. Environmental Protection Agency, *Summary of Research Findings from the Programmable Thermostat Market*, [www.energystar.gov](http://www.energystar.gov).

these thermostats have a battery life of three to four years and give warnings two to six months in advance of when the battery needs replacement.

A third solution mentioned by NEMA is to install a "power stealing" electronic thermostat. Power-stealing thermostats steal power from the equipment circuit to provide enough current to operate the thermostat. They only require four wires so there is no need for batteries. NEMA says this solution is problematic because power-stealing thermostats are not compatible with all types of heating and air conditioning equipment.

A fourth solution is to replace the mercury switch thermostat with a nonmercury mechanical thermostat instead of an electronic one. Mechanical thermostats, with or without mercury switches, work with four wires.

We could find no evidence that the Department either ignored or disputes NEMA's information regarding the various options for replacing mercury thermostats with nonmercury alternatives. To the extent there is divergence on this issue, it appears to be on whether the wiring issue raised by NEMA is a significant barrier to the phase out of mercury thermostats in Maine.

The record is mixed on this point. NEMA argues that battery-powered and power-stealing thermostats have a limited market because of contractor and homeowner resistance. Thermostat manufacturer Invensys, on the other hand, says battery-powered models are popular among contractors for the very reason that they work with 4-wire systems. Invensys goes on to state that the majority of thermostat models available at retail are battery-operated. NEMA counters by observing that most retail sales are to do-it-yourselfers and they account for a small part of the overall thermostat replacement market. Contractors install most replacement thermostats and purchase them from wholesalers.

A thermostat market study submitted by NEMA does not explicitly mention the wiring issue, but the authors observe that contractor comfort with the old mercury switch technology is increasing the time it will take to complete the shift to the newer electronic technology.<sup>8</sup> According to the study, "a lack of effort by contractors to raise demand for electronic thermostats has been confining the market."

On the other hand, the same study shows that the electronic thermostat market has experienced healthy growth, suggesting that the wiring issue is not an insurmountable barrier.<sup>9</sup> The study also predicts the eventual discontinuation of mercury thermostats because of concerns about mercury and the greater energy efficiency afforded by

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<sup>8</sup> Frost & Sullivan, *North American HVAC Thermostat and Temperature Control Markets* (May 2000), p 3-4.

<sup>9</sup> *Id.*, pp 1-3 though 1-5.

electronic devices.<sup>10</sup> We further note that the EPA Energy Star program promotes programmable thermostats without any mention of wiring issues as a potential barrier to their use.

NEMA says that the Department has cited no data undercutting the issues NEMA has raised regarding thermostat replacement. Even if the Board were to entirely agree with this statement, and we do not, it is not clear how acknowledgement of the wiring issues supports NEMA's case for exemption. What is the environmental or public health benefit that accrues to mercury thermostats from this replacement issue? NEMA does not identify any such benefit. Nor does NEMA argue that the wiring issue is an absolute barrier to the use of nonmercury thermostats. It is not even a barrier to hardwiring electronic thermostats as a fifth wire presumably can be pulled in most cases. The problem, if there is one, seems to be mainly a matter of contractor resistance, which hardly illustrates an environmental or public health issue.

- H. Alleged error. The Department cites no evidence that there are viable nonmercury thermostats for use by the visually and physically challenged.

Discussion. NEMA member Honeywell makes a mercury-added thermostat with a special faceplate that allows visually impaired persons to set temperature by touch. According to NEMA, this is the only thermostat designed specifically for use by visually impaired persons or other handicapped individuals.

The Maine law prohibiting the sale of mercury-added thermostats already includes an exemption for thermostats used by blind or visually impaired persons. NEMA nevertheless argues that Honeywell is extremely unlikely to maintain its manufacturing line for this relatively small number of mercury thermostats if Maine and other states prohibit the sale of mercury thermostats to others. There is no evidence in the record to support this assertion. NEMA says only that it is common business sense.

Assuming NEMA is right and Honeywell does stop making mercury thermostats altogether, there is ample evidence in the record that mercury-free alternatives are and will continue to be available. Specifically, in its decision denying NEMA's exemption request, the Department finds as follows:

"[I]nformation from Invensys and the Iris Network, an organization that assists blind and visually impaired persons in Maine, indicates that mercury-free alternatives are and will continue to be available. Several manufacturers of electronic thermostats already make talking models. Talking thermostats are expensive, but they are not the only mercury-free alternative. Affordable mercury free electromechanical

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<sup>10</sup> *Id.*, p 5-7.

thermostats with round dials also are readily available. These can be easily adapted with large dials, Braille or other markings to facilitate use by visually impaired persons according to information provided by the Iris Network and thermostat manufacturer Invensys. The Alliance for a Clean and Healthy Maine reports that Honeywell itself sells a 'digital alternative to its popular round mercury thermostat. This mercury-free round model features an easy to use grippable area on the temperature adjustment dial just like the mercury thermostat.'"

These findings are uncontroverted by NEMA. Instead, NEMA says only that the Maine Legislature was concerned enough about this issue to provide a specific exemption for mercury thermostats used by blind or visually impaired persons, and that they presumably did so because they were made aware of the lack of alternatives.

During the legislative debate on Maine's mercury thermostat ban, NEMA argued, as they do here, that there were no viable nonmercury thermostats for visually impaired persons. In support of this argument, NEMA provided the Legislature's Natural Resources Committee with email correspondence from Steven Obremski of the Iris Network. In this correspondence, Mr. Obremski expressed concern that a ban on the sale of all mercury-added thermostats may leave visually impaired persons without affordable alternatives. Mr. Obremski said that most electronic thermostats use a touch-pad that has no audible or tactile feedback, making it impossible for a blind person to independently use this equipment. He also observed that "talking" electronic thermostats are available but can be cost prohibitive for blind people, most of whom are unemployed or on fixed incomes. These concerns led the committee to include the exemption for thermostats sold for use by a blind or visually impaired person.

It is apparent from the record that thermostat options for the blind are not as limited as NEMA implied to the Maine Legislature. The Department has received information on the availability of several nonmercury thermostats that can be used by blind and visually impaired persons. The Department also contacted Mr. Obremski about the impacts to Maine's blind population if Honeywell stops producing its mercury switch thermostats. Mr. Obremski indicated that specially designed or adapted thermostats would still be available through catalogs, specialty stores or the Iris Network itself. If the legislative exemption does not dispose of this issue, Mr. Obremski's opinion does.

- I. Alleged error. The Department ignored evidence that mercury switch thermostats are more reliable than electronic thermostats.

Discussion. NEMA claims that mercury switches have a longer life than electronic thermostats and are more reliable, resulting in fewer service calls to contractors. NEMA says there are millions of mercury switch thermostats that are over 20 years old, while electronic thermostats are susceptible to wearing out after 15 years. NEMA also says that

dust and oxidation can affect nonmercury mechanical thermostats with open contacts, reducing their effective life to 10 to 15 years. Finally, NEMA says most mercury thermostats are rated for 1.5 amps compared to 1.2 amps for nonmercury thermostats. According to NEMA, the higher amp rating for mercury thermostats means they will last longer and perform better in a wider range of applications.

The Frost and Sullivan market survey contradicts NEMA's reliability claims for mercury thermostats. That study says that the life span of mechanical thermostats can reach the 15-year mark, while "electronic devices are estimated to last longer as they do not contain moving parts that wear out, therefore maintaining their reliability."<sup>11</sup> According to Frost and Sullivan:

"The average life for most thermostats is somewhere between 10 and 15 years depending on the application of the device and factors such as cleanliness of the environment. A thermostat can be kept working for over 20 years, however its reliability will be greatly diminished. This certainly is the case with electromechanical thermostats, where mechanical parts get worn out over time, reducing reliability."<sup>12</sup>

On the specific point of reliability, Frost and Sullivan have this to say:

"One of the major problems encountered with the use of electromechanical thermostats is the lack of reliability. Over time, the mechanical parts used in electromechanical thermostats become dirty and begin to malfunction. The major issue when it comes to reliability is the ability of the thermostat to turn on and off at the set temperature. A thermostat that is working at a 3 to 4 degree difference from the set temperature will consume additional energy and will not provide a comfortable environment.

The electronic thermostat can provide these benefits as their design provides both reliability and comfort. The setting on an electronic thermostat has a margin of error of +/- 1 degree and in some thermostats the error can be as little as half a degree. End users have become more demanding and are expecting better results from their thermostat device. This idea has strengthened demand for electronic devices and, as price drops, demand is anticipated to be even greater."<sup>13</sup>

Jonathan Kleinman of Efficiency Vermont, in comments on NEMA's exemption application, also disagrees with the proposition that mercury thermostats are more reliable. Mr. Kleinman says

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<sup>11</sup> Frost and Sullivan, supra n. 7 at p. 4-7.

<sup>12</sup> Frost and Sullivan, supra n. 7 at p. 5-5.

<sup>13</sup> Frost and Sullivan, supra n. 7 at p. 7-5.

that the performance of mercury thermostats is adversely affected in a way that electronic thermostats are not by dust and dirt and by failure to install them on the level.

- J. Alleged error. The Department ignored evidence that programmable thermostats are not recommended for homes built on radiant slabs.

Discussion. In its application for exemption, NEMA observes that radiant slab systems increase the time required for a structure to warm. Because of this limitation, Efficiency Vermont does not recommend the use of programmable thermostats for these systems. Efficiency Vermont is a program run by the Vermont Energy Efficiency Corporation under contract with the Vermont Public Service Board. Efficiency Vermont helps Vermont citizens reduce electricity use and costs by, among other things, promoting the use of Energy Star programmable thermostats.

NEMA's observation about radiant slabs is from remarks by Jonathan Kleinman at a meeting of the Vermont Advisory Committee on Mercury Pollution on October 20, 2002. In his remarks, Mr. Kleinman mentioned that Efficiency Vermont implements an Energy Star Homes program under which use of programmable thermostats is recommended except in the case of homes with radiant slab heating systems. Programmable thermostats are not recommended for these homes because of the time required to heat the slab. According to the U.S. DOE, a radiant heating system that uses a concrete slab takes many hours to heat up if it is allowed to become cold. Accordingly, radiant floor systems should not be subjected to a very deep night setback. One radiant heating vender recommends a setback of no more than 5° F for any period.<sup>14</sup>

NEMA does not explain the relevance of this recommended practice to the contention that mercury thermostats provide a net benefit to the environment, public health or public safety. The relevance is not apparent on its face and we therefore do not find that the Department erred in failing to specifically address the matter in its decision.

Whether or not homeowners with radiant slab heating forego nighttime temperature setback is unrelated in any obvious way to either the type or efficiency of their thermostat. Homeowners do not need to install a mercury thermostat in order to forego setback. Efficiency Vermont, in fact, recommends homeowners who have this type of heating install an electronic thermostat, just not one that is programmable because programming feature is not needed.

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<sup>14</sup> Anderson Radiant Heating, "Operational Guide for Your Boiler and Radiant Panel Heating System," Campbell CA (2000).

K. Summary discussion of NEMA's contention that mercury thermostats are beneficial.

The Department and NEMA agree on one point. The amount of energy required for heating and cooling depends in part on how well the thermostat controls temperature swing. NEMA has failed to demonstrate, however, that mercury thermostats as a class are more effective in controlling temperature swing than nonmercury thermostats.

Given the ready availability of nonmercury thermostats that are equal or superior to mercury thermostats in controlling drift, the record does not demonstrate that the withdrawal of mercury thermostats from the marketplace will lead to an overall increase in energy consumption. Consumers have a choice, and could choose to replace their mercury thermostats with nonmercury models without incurring an energy penalty. Indeed, the record suggests that Maine might realize a net energy saving by virtue of its ban on mercury-added thermostats if consumers choose nonmercury thermostats that control temperature drift more effectively than the mercury models they are replacing.

At best, NEMA has shown that some nonmercury thermostats do not control temperature drift as effectively as some mercury models. This limited observation without more does not support the conclusion that removal of mercury thermostats from the Maine marketplace will or is more likely than not to result in an overall increase in energy consumption for heating and cooling. NEMA has not shown, for example, that inefficient nonmercury thermostats predominate in the marketplace, or that consumers are more likely to select poor performing models over available energy efficient models. Nor has NEMA made any attempt to quantify the energy savings and pollution reduction that it asserts Maine will enjoy if we continue to allow the sale of mercury thermostats.

In the absence of any credible showing that energy usage is likely to increase in Maine as a result of the ban on sale of mercury thermostats, we fail to discern a benefit to the environment, public health or public safety by lifting the ban as NEMA in effect urges. Nor is there any basis in the record for us to conclude that the Department, in failing to discern such a benefit, acted arbitrarily and capriciously as alleged by NEMA. Moreover, NEMA's assertion that mercury thermostats somehow provide a net environmental or public health benefit leaves unaddressed all the risks and costs associated with spills of mercury in the users' homes and elsewhere. The Natural Resources Council of Maine, in its comments on the Department's draft denial decision, reminds us that:

"Mercury, far more than any other component of all alternative thermostats, requires extraordinary special handling and after life care. It is well established, though unmentioned by [NEMA], that mercury is a potent neurotoxin that is especially dangerous for developing fetuses, infants, and young children. Surveys indicate that 10 to 20% of women of childbearing age have blood levels of mercury considered too high for the safety of the

developing fetus. The costs associated with learning disabilities that can be experienced by mercury-affected children must be factored into the equation underlying this application.

Because of such nearly immeasurable costs, mercury spills often require complex and costly clean-ups and remediation. A clean up after a mercury spill from a thermostat often costs thousands of dollars. For these reasons, each one of the thousands of capsules of mercury contained in thermostats distributed throughout Maine presents a potential toxic emergency.

The extraordinary risks and costs associated with mercury-added products is demonstrated by a 2001 incident that occurred in Michigan involving a mercury spill from a single wall-mounted thermostat... In that case, beads of mercury were found scattered in the living room of a family with a two-year-old the day after an old thermostat had been replaced. The State's Division of Environmental and Occupational Epidemiology quickly responded. Breathing zone readings in several rooms exceeded federal guidelines for residential air, in some rooms by a factor of 4.5. Living room furniture, a carpet and other household items were tested, found contaminated beyond recovery and were taken for disposal. The two-year-old was hospitalized with high levels of mercury in his blood and urine and "dense metallic" forms visible in X-rays of his gastrointestinal tract. He developed sudden behavioral abnormalities like violent outbursts. His treatment included charcoal gavage and monitoring."<sup>15</sup>

## 7. RESPONSE TO APPELLANT'S ARGUMENTS ON THERMOSTAT RECYCLING

NEMA's position. In order to grant the exemption requested by NEMA, the Department must find that a system exists for the proper collection, transportation and processing of mercury-added thermostats at end of life. NEMA alleges that the Department erred in concluding that such a system does not exist given the existence of the Thermostat Recycling Corporation (TRC). Thermostat manufacturers established TRC for the specific purpose of recycling mercury thermostats.

It is undisputed, however, that the TRC program in Maine results in recycling of less than 5% of the mercury thermostats available for collection. Given this low capture rate, the Department found that the TRC program as currently operated does not ensure that the mercury in thermostats will be kept out of the environment. Based largely on this finding, the Department concluded that the TRC program does not constitute "a system for the proper collection, transportation and processing of mercury-added thermostats."

NEMA argues that the Department, in basing its conclusion on the TRC capture rate, establishes a new standard that is inconsistent with the statute. NEMA believes it has met its

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<sup>15</sup> Email correspondence dated June 27, 2003 from John Hinck of the Natural Resources Council of Maine, to John James of the Maine Department of Environmental Protection.

burden by establishing the TRC and that it is now up to the citizens of Maine to achieve greater collection results. NEMA lays the blame for the low collection rates on the failure of the Department to do enough to promote the program and to enforce the prohibition on the disposal of mercury thermostats in the solid waste stream.

Finally, NEMA argues that the Department's decision is inconsistent with its decision to approve an exemption request by the Recreation Vehicle Industry Association (RVIA). In the RVIA decision, the Department granted an exemption from the Maine law prohibiting the sale of motor vehicles containing a mercury switch. The law in question, 38 MRSA §1665-A, sub-§ 1, reads as follows:

"A person may not sell a motor vehicle manufactured on or after January 1, 2003 if it contains a mercury switch. A motor vehicle manufacturer may apply to the commissioner for an exemption from this prohibition. The commissioner may grant an exemption upon finding that:

- A. The manufacturer has provided assurance that a system exists for the proper removal and recycling of the mercury switch; and
- B. Either of the following applies:
  - (1) Use of the mercury switch is necessary to protect public health or safety; or
  - (2) There are no technically feasible alternatives to the mercury switch at comparable cost."

NEMA observes that the Department, in granting RVIA's request for an exemption to sell motor homes that use a mercury switch in gas ovens, found that a system exists for the proper removal and recycling of the switches. NEMA further observes that the Department made this finding in the absence of any history showing that the collection system offered by RVIA will in fact capture a significant number of the switches.

Discussion. We do not agree that the Department erred in examining whether the TRC is capturing a significant number of mercury thermostats, or that consideration of the program's effectiveness rather than its mere existence establishes a new standard that is inconsistent with statute. The Department's approach is entirely consistent with the statute. It in fact would be contrary to clear purpose of the statute for the Department to grant an exemption knowing that 90% or more of the mercury allowed into commerce by the requested exemption could go uncollected.

It is clear that the TRC collection rate currently is very low. NEMA suggests, based on comparison with estimates by Oregon Department of Environmental Quality, that the Department may have overestimated the number of mercury thermostats available for collection. However, even if the estimated thermostat standing stock in Maine is reduced by

half, the TRC collection rate for 2003 represents less than 5% of the mercury thermostats that should be available for collection assuming a thermostat life of 30 years.

The reasons for the low TRC capture rate have been the subject of debate in the context of NEMA's exemption request as well as before Maine Mercury Products Advisory Committee and the Maine Legislature. NEMA says the problem lies with the Department for failure to aggressively promote the program and failure to enforce Maine law requiring contractors to ensure that mercury thermostats are delivered to a facility that will recycle the mercury. The same law requires manufacturers of mercury thermostats to provide incentives and information to encourage purchasers and consumers to ensure that the mercury in thermostats is recycled when they are removed from service.<sup>16</sup>

Last May, after hearing testimony that the TRC program "is broke and needs to be fixed,"<sup>17</sup> the Legislature enacted a law directing the Department to develop a plan by January 15, 2004 to significantly improve collection of mercury thermostats.<sup>18</sup> The Department convened a stakeholder group, including TRC representatives, to assist with this task and submitted *A Plan to Improve the Collection of Mercury Thermostats* to the Legislature's Committee on Natural Resources in January of this year. That plan has resulted in new legislation that will increase the number of thermostat collection points by requiring all mercury thermostat wholesalers to maintain collection bins.<sup>19</sup> However, we have no basis to reverse the Department in the absence of a showing that there has been a substantial and dramatic increase in the TRC collection rate.

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<sup>16</sup> See 38 MRSA § 1664, which reads:

**"1. Removal from service; products containing mercury.** When a mercury-added product is removed from service, the mercury in the item must be reused, recycled or otherwise managed to ensure compliance with section 1663.

A person who is in the business of replacing or repairing a mercury-added product in households shall ensure, or deliver the item to a facility that will ensure, that the mercury contained in an item that is replaced or repaired is reused, recycled or otherwise managed in compliance with section 1663.

**2. Thermostats.** A manufacturer of thermostats that contain mercury or a manufacturer of thermostats that may replace thermostats that contain mercury shall, in addition to the requirements of section 1662, provide incentives for and sufficient information to purchasers and consumers of the thermostats for the purchasers or consumers to ensure that mercury in thermostats being removed from service is reused, recycled or otherwise managed in compliance with section 1663. A manufacturer that has complied with this subsection is not liable for improper disposal by purchasers or consumers of thermostats. Manufacturer collection programs conducted in accordance with universal waste rules adopted by the department meet the requirements of this subsection.

<sup>17</sup> Michael Belliveau, Executive Director of the Environmental Health Strategy Center, in testimony supporting LD 1159 before the Joint Standing Committee of Natural Resources, 121<sup>st</sup> Maine Legislature, March 27, 2003.

<sup>18</sup> *An Act to Reduce Mercury Use in Measuring Devices and Switches*, PL 2003, c. 221, § 4.

<sup>19</sup> *An Act to Protect Health and the Environment by Improving the System for the Collection and Recovery of Mercury-added Thermostats*, PL 2003, c. 640.

Whether or not this legislative fix will substantially boost the collection rate remains to be seen. We note, however, that this is not the only step that has been taken to help TRC improve its program. Contrary to the suggestion in NEMA's appeal petition, the Department has made a concerted effort to help TRC improve its program. Appendix B of the improvement plan submitted to the Legislature in January lists the actions taken by the Department to date:

- In August 2000, the Department went through the yellow pages for the state and identified likely wholesalers of mercury thermostats. Each business was called to confirm that it distributed mercury thermostats at wholesale. This information was conveyed to TRC and increased TRC information mailings in Maine from 6 to 29 wholesalers. Two of wholesalers identified by the Department signed up for the TRC program.
- In September 2000, the Department issued a press release praising the wholesalers who participate in the TRC program and explaining how to participate in the program. The release received TV and newspaper coverage.
- During the fall and winter of 2000, the Department ordered and paid for 10 TRC collection bins. The Department then called wholesalers to sign them up with the TRC program and delivered the bins with verbal instructions on how to use them. Eight wholesalers (62% of all wholesalers in program) were signed up for the TRC program through this initiative. (Two later dropped out of program due to liability issues.)
- In December 2000, the Department issued a second press release about the TRC program, again explaining how to participate. The release received newspaper coverage.
- In the spring of 2001, the Department made follow-up calls to participating wholesalers with bins to ensure they weren't having problems with the program.
- In October 2001, the Department obtained mailing labels for TRC of all HVAC contractors licensed to change a thermostat (17,000 individuals).
- In October 2001, the Department called wholesalers to identify trade journals or electrical contractor associations where the TRC program could be advertised.
- In November 2001, the Department called the New Hampshire Department of Environmental Services to obtain their signage advertising the TRC program and passed it on to TRC for printing and mailing to wholesalers.
- In September 2002, the Mercury Products Advisory Committee sent a letter to thermostat retailers asking that they encourage their customers to participate in the TRC program. Forty-six retailers pledged to do this by displaying information about the hazards of mercury and mercury thermostat recycling options.
- In April 2003, the Department worked with the Department of Professional and Financial Regulation (DPFR) to inform heating, ventilating and air conditioning (HVAC)

contractors about the requirement to recycle waste mercury thermostats and the availability of the TRC program. DPFR agreed to include the information in their workshops for HVAC contractors.

- In June 2003, the Department hired a research company to conduct a survey of Maine HVAC wholesalers and identify barriers to participation in the TRC program. The department conducted a similar survey of HVAC contractors to identify barriers to their participation.
- In the fall of 2003, the Department convened a stakeholder group to review the results of the contractor and wholesaler surveys, investigate ways to improve the TRC program, and provide input of development of the improvement plan required by the Legislature.

All of these efforts have been for the purpose of recovering the hundreds of thousands of mercury switch thermostats *that already have been placed in service*, and to prevent the mercury in the thermostats from being discharged to the environment. The Maine Legislature has supported these efforts by: prohibiting the disposal of mercury thermostats in the trash [38 MRSA §§ 1663 and 1666]; requiring mercury thermostats to be labeled so that users will know of the disposal prohibition [38 MRSA § 1662(2)]; requiring HVAC contractors to ensure that the mercury thermostats they remove are recycled [38 MRSA § 1664(1)]; requiring manufacturers of mercury thermostats to provide recycling incentives [38 MRSA § 1664(2)]; and, ultimately, by banning the sale of new mercury switch thermostats beginning January 1, 2006 [38 MRSA § 1661C(5)].

In enacting the sales ban, the Legislature implicitly acknowledged that nonmercury alternatives are available for most applications in which mercury thermostats are currently used. However, the Legislature also acknowledged a few specific applications in which the use of nonmercury thermostats could be problematic. For those specific problematic applications identified during the Legislative debate, specific statutory exemptions were provided. Thus, the statute expressly exempts a mercury "thermostat used by a blind or visually impaired person" and a mercury "thermostat used to sense and control temperature as part of a manufacturing process."

The Legislature also recognized that there might be other specific, unanticipated specialty applications in which the use of a nonmercury thermostat could have unintended health, safety or environmental consequences.<sup>20</sup> Thus, the Legislature also included the language pursuant to which NEMA filed its exemption request. This language allows thermostat manufacturers to apply for exemption from the sales ban for one or more specific uses of a mercury thermostat if the application is made before January 1, 2003.

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<sup>20</sup> Alliance for a Clean and Healthy Maine, in comments submitted to the Maine Department of Environmental Protection on January 30 2003.

By requiring that exemption applications be made before January 1, 2003, the Legislature presumably meant to ensure that exemption decisions were made well in advance of the January 1, 2006 effective date of the sales prohibition so that manufacturers then would have ample time to make production decisions. However, the deadline also has the effect of precluding NEMA and others from filing an exemption application in the future in the event that TRC is able to substantially improve its mercury thermostat recovery rate.

Clearly, both the Department and NEMA have a strong interest in improving the TRC program and are working toward that end. However, there is no guarantee these efforts will quickly lead to the substantial improvement needed to support NEMA's exemption request. In the meantime, the Legislature, by imposing a deadline on the receipt of exemption requests, has set a de facto deadline for the Department's decision on those requests.

Both the Maine statutes<sup>21</sup> and the Department *Rules Concerning the Processing of Applications and Other Administrative Matters* establish an expectation that the Department will act on pending applications in a reasonably expeditious manner. These laws compel us to act on NEMA's appeal now and to act on the basis of information presently in the record. That information does not support the conclusion that a system exists for the proper collection, transportation and processing of mercury thermostats at end of life.

As for the RVIA exemption request approved by the Department, we do not find the Department's decision in that case to be inconsistent with its decision on NEMA's request. NEMA correctly observes that the Department granted RVIA's exemption request in the absence of any history showing that a significant number of the oven switches are likely to be collected. This is because there was no such collection history to rely on. Moreover, RVIA was not seeking to wholly undo a statutory ban by seeking an across-the-board exemption for all automotive mercury switch applications. Rather, it sought a limited exemption for a specialty mercury switch application that is needed for safety reasons and for which there currently are no nonmercury alternatives. NEMA on the other hand seeks a blanket exemption for all mercury thermostats made by the industry.

## 8. REMEDY REQUESTED

NEMA asks the board to reverse the Department decision.

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<sup>21</sup> See 38 MRSA §§ 342(1-A), 344 and 344-B

NATIONAL ELECTRICAL ) APPEAL  
MANUFACTURERS ASSOCIATION ) FINDINGS OF FACT AND ORDER

BASED on the above findings, the board AFFIRMS the Department decision denying NEMA's request for exemption under 38 MRSA §1661-C, sub-§5.

DONE AND DATED AT AUGUSTA, MAINE, THIS 6TH DAY OF MAY 2004.

BOARD OF ENVIRONMENTAL PROTECTION

BY: \_\_\_\_\_  
Richard Wardwell, Chair